

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2000-356854

(43)Date of publication of application : 26.12.2000

(51)Int.Cl.

G03F 7/11  
C08K 5/541  
C08L 83/04  
C08L 83/14  
G03F 7/075  
H01L 21/027

(21)Application number : 11-163215

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(22)Date of filing : 10.06.1999

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(30)Priority

Priority number : 11103689 Priority date : 12.04.1999 Priority country : JP

(54) COMPOSITION FOR RESIST LOWER FILM

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain a composition for a film under a resist disposed between the resist and an antireflection film, having both adhesion to the resist and resistance to a resist developing solution and also having resistance to oxygen ashing in the removal of the resist.

SOLUTION: The composition contains (A) a hydrolyzate and/or a condensation product of at least one compound selected from the group comprising compounds of the formula  $R_1aSi(OR_2)_{4-a}$  [where  $R_1$  is H, F or a monovalent organic group,  $R_2$  is a monovalent organic group and (a) is an integer of 0-2] and the formula  $R_3b(R_4O)_3-bSi-(R_7)_d-Si(OR_5)_3-cR_6c$  [where  $R_3$ - $R_6$  may be the same or different and are each a monovalent organic group, (b) and (c) may be the same or different and are each a number of 0-2,  $R_7$  is O or  $-(CH_2)_n-$ , (d) is 0 or 1 and (n) is a number of 1-6] and (B) a compound which generates an acid when irradiated with UV

and/or heated.

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## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
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3. In the drawings, any words are not translated.

## CLAIMS

[Claim(s)]

[Claim 1] (A) (A-1) Compound  $R_1aSi(OR_2)_4$ -a expressed with the following general formula (1) ..... (1)

( $R_1$  shows a hydrogen atom, a fluorine atom, or a univalent organic radical,  $R_2$  shows a univalent organic radical, and  $a$  expresses an integer of 0-2.) And (A-2) compound  $R_3b(R_4O)_3-bSi-(R_7)_d-Si(OR_5)_3-cR_6c$  expressed with the following general formula (2) ..... (2)

(You may differ, even if  $R_3$ ,  $R_4$ ,  $R_5$ , and  $R_6$  are the same, and a univalent organic radical is shown, respectively.  $b$  and  $c$ ) you may differ, even if the same, and the number of 0-2 is shown,  $R_7$  shows an oxygen atom or  $-(CH_2)_n$ ,  $d$  shows 0 or 1, and  $n$  shows the number of 1-6. from -- a constituent for resist lower layer films characterized by containing a compound which generates an acid with hydrolyzate and a condensate or either and (B) ultraviolet radiation exposure, and/or heating of at least one sort of compounds chosen from a becoming group.

[Claim 2] (A) A constituent for resist lower layer films according to claim 1 characterized by a component being hydrolyzate and its condensate, or either of the compounds expressed with the following general formula (3).

$Si(OR_2)_4$  (3)

( $R_2$  shows a univalent organic radical.)

[Claim 3] (A) A constituent for resist lower layer films according to claim 1 characterized by being hydrolyzate and its condensate, or either of the silane compounds with which a component consists of a compound expressed with a compound and the following general formula (4) which are expressed with the following general formula (3).

$Si(OR_2)_4$  (3)

( $R_2$  shows a univalent organic radical.)

$R_1nSi(OR_2)_{4-n}$  (4)

(You may differ, even if  $R_1$  and  $R_2$  are the same, and a univalent organic radical is shown, respectively, and  $n$  shows an integer of 1-3.)

[Claim 4] (A) A constituent for resist lower layer films according to claim 1 characterized by a content of the (B) component being 1 - 30 weight section to the component (full hydrolysis condensate conversion) 100 weight section.

[Claim 5] A constituent for resist lower layer films according to claim 1 characterized by a content of alcohol contained in a constituent being less than 5 % of the weight.

[Claim 6] A manufacture method of a constituent for resist lower layer films according to claim 3 characterized by mixing a hydrolysis condensate of a compound expressed with a hydrolysis condensate and the following general formula (4) of a compound expressed with the following general formula (3).

$Si(OR_2)_4$  (3)

( $R_2$  shows a univalent organic radical.)

$R_1nSi(OR_2)_{4-n}$  (4)

(You may differ, even if  $R_1$  and  $R_2$  are the same, and a univalent organic radical is shown, respectively,

and n shows an integer of 1-3.)

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